

## CLAIMS

1. A piezoelectric transformer driving apparatus characterized by comprising:
  - two driving parts which generate AC drive voltages, respectively;
  - a first piezoelectric transformer (2) which generates a high voltage AC from a drive voltage generated by one of the driving parts, and applies this AC to one terminal of a load;
  - a second piezoelectric transformer (3) which generates a high voltage AC with polarity reverse to the first piezoelectric transformer (2), from a drive voltage generated by the other driving part, and applies this AC to the other terminal of the load; and
  - a detection part (4) which is connected between the one of the driving parts and the other driving part, in which a load current flowing into the load flows, and which detects this load current.
2. The piezoelectric transformer driving apparatus according to claim 1, characterized in that the respective driving parts are secondary windings (1A<sub>2</sub> and 1B<sub>2</sub>) provided to primary windings (1A<sub>1</sub> and 1B<sub>1</sub>) of transformers (1A and 1B);
  - that the primary winding (1A<sub>1</sub>) of one of the transformers (1A) and the primary winding (1B<sub>1</sub>) of the other (1B) transformer are connected with each other in series; and
  - that the first piezoelectric transformer (2) is driven by an AC drive voltage generated by the secondary winding (1A<sub>2</sub>) of the one of the transformers (1A), and the second piezoelectric transformer (3) is driven by a drive voltage generated by the secondary winding (1B<sub>2</sub>) of the other transformer (1B).
3. The piezoelectric transformer driving apparatus according to claim 2, characterized in that the detection part (4) has a first resistor (4A) connected with the secondary winding (1A<sub>2</sub>) of the one of the transformers (1A), and a second resistor (4B) which is connected with the secondary winding (1B<sub>2</sub>) of the other transformer (1B) and is connected with the first resistor (4A) in series; and
  - that a junction of the two resistors (4A and 4B) is grounded.
4. A piezoelectric transformer driving apparatus characterized by comprising:
  - two driving parts which generate AC drive voltages, respectively;
  - a first piezoelectric transformer (2) which generates a high voltage AC from a drive voltage

generated by one of the driving parts, and applies this AC to one terminal of a load;

a second piezoelectric transformer (3) which generates a high voltage AC with polarity reverse to the first piezoelectric transformer (2), from a drive voltage generated by the other driving part, and applies this AC to the other terminal of the load; and

a detection part (4) which is connected with one of the driving parts and detects a load current which flows into the load, from a current which flows between this driving part and the ground.

5. The piezoelectric transformer driving apparatus according to claim 4, characterized in that the respective driving parts are secondary windings (1A<sub>2</sub> and 1B<sub>2</sub>) provided to primary windings (1A<sub>1</sub> and 1B<sub>1</sub>) of transformers (1A and 1B);

that the primary winding (1A<sub>1</sub>) of one of the transformers (1A) and the primary winding (1B<sub>1</sub>) of the other transformer (1B) are connected with each other in series; and

that the first piezoelectric transformer (2) is driven by an AC drive voltage generated by the secondary winding (1A<sub>2</sub>) of the one of the transformers (1A), and the second piezoelectric transformer (3) is driven by a drive voltage generated by the secondary winding (1B<sub>2</sub>) of the other transformer (1B).

6. The piezoelectric transformer driving apparatus according to claim 5, characterized in that the detection part (4) is a resistor (4A), one terminal of which is connected with the secondary winding (1A<sub>2</sub>) of one of the transformers (1A), and the other terminal of which is grounded.